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REMARKS

Claims 1-20 are all the claims presently pending in the application. New claims 15-20 have been added to more completely define the invention.

It is noted that the claims have been amended solely to more particularly point out Applicant's invention for the Examiner, and not for distinguishing over the prior art, narrowing the claim in view of the prior art, or for statutory requirements directed to patent ability.

It is further noted that, notwithstanding any claim amendments made herein, Applicant's intent is to encompass equivalents of all claim elements, even if amended herein or later during prosecution.

Attached hereto is a marked-up version of the changes made to the Specification and/or claims by the current Amendment. The attached pages are captioned "**Version with markings to show changes made**".

Claims 1-4 and 8-11 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Rink (U.S. Pat. 4,950,268)(hereinafter "Rink").

Claims 5-7 and 12-14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Rink.

These rejections are respectfully traversed in the following discussion.

I. THE CLAIMED INVENTION

Applicant's invention, as defined for example in a non-limiting embodiment of independent claim 1 (and substantially similarly by independent method claim 8) is directed to a power control circuit for a laser diode which includes an amplifier circuit producing at an output terminal an output voltage responsive to a voltage difference between a reference voltage and a feedback voltage that is indicative of an optical power generated by the laser diode in response to a driving current flowing therethrough. The power control circuit also includes a driving circuit which responds to the output voltage to control the driving current so as to make the voltage difference small.

A feature of the present invention, in a non-limiting embodiment, is that the amplifier circuit drives the output terminal with a first time constant during a steady operation and with a second time constant that is smaller than the first time constant upon initiation and before the steady operation.

With such features, an operation mode can be quickly shifted and stabilization in the optical output of a laser diode can be improved (e.g., see page 8, lines 1-14 and 25-28; page 9, lines 1-9 and 21-27; page 10, lines 1-8; page 12, lines 1-27; and page 13, lines 1-3 of the present application).

The conventional systems, such as those discussed below and in the Related Art section of the present application, do not have such a structure, and fail to provide for such an operation.

Such features are not taught or suggested by any of the cited references.

II. THE PRIOR ART REFERENCE

A. The Rink Reference

The Examiner asserts:

> *[regarding claims 1, 2, 8 and 9] Rink disclosed in fig. 2 a control circuit for laser diode, comprising: an amplifier circuit (64) producing at an output terminal and feedback voltage that is indicative of an optical power via PD (57) generated by laser diode (not shown) in response to a driving circuit flowing there through; a driving circuit responding to output voltage to control driving current so as to make voltage difference small; a second amplifier circuit (61) producing at a second output terminal. (See Fig. Below).*
>
> *It is inherent that amplifier circuit driving output terminal with a first time constant during a steady operation (created by two switch C2) and with second time second time (sic) constant because, when switch (67) is off (open) the gain the operation amplifier (66) is determined by the resistor (63), the RC operating to suppress overshoot and/or undershoot of the signal, thus amplifier (64) drives the terminal with a first time*

> *constant. When switch (67) is on (close) and switch (59) open then the operation of amplifier (64) functions as a voltage follower in spite of the resistor (63) and capacitor (66). Thus, the amplifier 64 drives with a second time constant that is smaller (sic) the first time constant. (See Fig. Below).*

However, Applicant respectfully disagrees.

Specifically, contrary to the Examiner's assertions above, Applicant respectfully submits that Rink teaches away from the present invention.

Firstly, Rink discloses a laser driving and control system, the block diagram of which is shown in Fig. 1 (e.g., and whose operation is described in column 4, lines 1-65 of Rink).

In the laser driving circuit system of Rink, the MOSFET laser power control 33 drives and controls a laser diode (not shown). The driving time of the laser diode corresponds to the pulse width (e.g., the high level period) of the signal C3.

As shown in Fig. 6 of Rink, the rising edge of the pulse signal C3 is controlled by the signal C2 (e.g., signal C3 commences when C2 goes low) and the falling edge of the signal C3 is controlled by the timer period of the timer 18 or the output of the reset AND gate 32. Accordingly, no driving power is supplied to the laser diode during the signal C2.

Further, as shown in Fig. 2 of Rink referred to by the Examiner on Page 3 of the Office Action, Applicant notes that the switch 67, which is connected in parallel to the capacitor 66, is turned ON by the signal C2. Therefore, Rink explicitly describes that "*firing signal C2 causes the switch 67 to reset the integration product to zero prior to each laser pulse*" (e.g., see column 6, lines 45-48 of Rink). Thus, the switch 67 is turned OFF whenever the laser diode is driven by the power control 33.

That is, as disclosed in Rink, the op amp 64 drives its output terminal with a single time constant (e.g., or a single current driving ability) during the entire period of time when the laser diode is driven.

Thus, Rink does not teach or suggest "*said amplifier circuit driving said output terminal with a first time constant during a steady operation and with a second time constant that is smaller than said first time constant upon initiation and before said steady operation*",

as defined by independent claim 1 (and substantially similarly by independent claim 8).

In contrast to Rink, in the present invention "[t]he switch SW2 is controlled by a control signal C2 supplied from circuit 7, that responds to Mode signal. The signal C2 assumes an active level during the predetermined period of time in response to the designation or selection of the write operation mode for initiating the WRITE block 11. The signal C2 is changed to an inactive level after such period of time and maintained at the inactive level during the steady operation in the write operation mode" (emphasis Applicant's) (e.g., see page 12, lines 5-13 of the specification). Thus, in the present invention during initiation a switch is in an ON state.

Hence, turning to the clear language of the claims, Rink does not teach or suggest "*[a] power control circuit for a laser diode, comprising:*

an amplifier circuit producing at an output terminal thereof an output voltage responsive to a voltage difference between a reference voltage and a feedback voltage that is indicative of an optical power generated by said laser diode in response to a driving current flowing therethrough; and

a driving circuit responding to said output voltage to control said driving current so as to make said voltage difference small,

said amplifier circuit driving said output terminal with a first time constant during a steady operation and with a second time constant that is smaller than said first time constant upon initiation and before said steady operation" (emphasis Applicant's).

For the reasons stated above, independent claim 1 (and substantially similarly independent claim 8) of the claimed invention are fully patentable over Rink.

Further, dependent claims 2-4 and 9-11 (and new claims 15-18) when taken in combination with independent claims 1 and 8 define additional novel limitations.

Further, with regard to dependent claims 5-7 and 12-14, rejected under 35 U.S.C. 103(a) as being unpatentable over Rink, when combined with independent claims 1 and 8 also define additional novel and non-obvious features. That is, Rink does not teach or suggest the limitations of these claims and specifically *"said amplifier circuit driving said output terminal with a first time constant during a steady operation and with a second time constant that is smaller than said first time constant upon initiation and before said steady*

operation" (emphasis Applicant's).

Therefore, Rink is much different from the present invention and fails to teach or suggest the claimed invention.

For the reasons stated above, the claimed invention is fully patentable over the cited references.

III. FORMAL MATTERS AND CONCLUSION

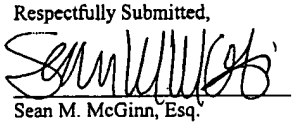
Regarding the Examiner's objections that allegedly claims 11-14 are in improper dependent form, the claims have been amended above to correct the dependency of these claims.

In view of the foregoing, Applicant submits that claims 1-20, all the claims presently pending in the application, are parentally distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,



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CERTIFICATION OF FACSIMILE TRANSMISSION

I hereby certify that I am filing this Amendment by facsimile with the United States Patent and Trademark Office to Examiner Hung T. Vy, Group Art Unit 2828 at fax number (703) 308-7722 this 29th day of November, 2002.

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please amend the claims as follows:

1. (Amended) A power control circuit for a laser diode, comprising:

an amplifier circuit producing at an output terminal thereof an output voltage responsive to a voltage difference between a reference voltage and a feedback voltage that is indicative of an optical power generated by said laser diode in response to a driving current flowing therethrough; and

a driving circuit responding to said output voltage to control said driving current so as to make said voltage difference small[;],

said amplifier circuit driving said output terminal with a first time constant during a steady operation and with a second time constant that is smaller than said first time constant upon initiation and before said steady operation.

8. (Amended) A power control circuit for a laser diode, comprising:

a first amplifier circuit producing, when activated, at a first output terminal thereof a first output voltage responsive to a first voltage difference between a first reference voltage and a feedback voltage that is indicative of an optical power generated by said laser diode in response to a driving current flowing there through;

a second amplifier circuit producing, when activated, at a second output terminal thereof a second output voltage responsive to a second voltage difference between a second reference voltage and said feedback voltage; and

a driving circuit responding to an activated one of said first and second output voltage to control said driving current so as to make a corresponding one of said first and second voltage difference small, respectively[;],

at least one of said first and second amplifier circuits driving one of said first and second output terminals with a first time constant during a steady operation and with a second

time constant that is smaller than said first time constant upon initiation and before said steady operation.

11. (Amended) The circuit according claim [11] 10, wherein at least one of said first and second amplifier circuits further includes a first resistor, a second resistor coupled in parallel to said capacitor, and a second switch coupled to said input end of said operational amplifier through said first resistor, said second switch being turned ON during said steady operation and OFF upon said initiation.

13. (Amended) The circuit according claim [13] 11, wherein at least one of said first and second amplifier circuits further includes a third switch coupled to said capacitor, forming an electrical path between said input end of said operational amplifier and said capacitor during said steady operation and providing said input end of said operational amplifier with said first reference voltage upon said initiation.